REMARKS

Reconsideration of the rejection of the subject matter of this application is requested.

Status of Claims

Claims 1-14 are presented for consideration. Claim 1 has been amended to emphasize a main feature of the invention, i.e. that the encasement for the optical fiber bundle is a rigid solid polymer that effectively translates stresses on the encasement to the optical fiber bundle.

The Title of the Invention

The title has been objected to as not descriptive of the invention. The title has been amended with this paper.

The Drawing

The drawing has been objected to. The objection appears to be based either on a misinterpretation of applicants' invention, or arguably inapt claim language in claim 1 as filed. Applicants have assumed the latter, and submit that the claim as amended with this paper overcomes the objection. Applicants' Fig. 5 shows an optical fiber bundle, and an encasement encasing each of the optical fibers in the bundle.

Claim Objections

Claim 1 has been objected to as lacking an article starting the preamble. Claim 1 has been suitably amended.

Specification Objection

The specification is objected to because "an encasement surrounding each of the plurality of optical fibers has not been described in the specification. The specification, p. 3, lines 18 and 19 states:

> "The term "encasement" as used herein is defined as the primary medium that surrounds the optical fibers."

Fig. 5 shows encasement 51 surrounding each of the optical fibers 51. It is believed that both the language and intent would be clear to those skilled in the art. Claim 1 has been amended to change the word "surrounding" to -- encasing --. The Examiner may find this term more apt.

Claim Rejections

The rejections on prior art that are of record and intended to be responded to in this paper are:

Claims 1-14 stand rejected under 35 U.S.C. 112.

Claims 1, 9, 12 and 13 stand rejected under 102(b) as anticipated by Quinn et al.

Claims 2-8, 10, 11, and 14 stand rejected under 103(a) as unpatentable over Quinn et al.

Argument

Prior to addressing the rejection a brief summary of the invention may be helpful. The invention is directed to an optical fiber cable design in which the outer sheath of the cable is mechanically coupled to an optical fiber bundle within the cable. That coupling is made via a solid polymer conformal encasement that contacts each of the optical fibers in the optical fiber bundle, whereby mechanical forces that act on the outside of the cable may be translated through the solid polymer encasement to the optical fibers in the optical fiber bundle. The encasement is relatively rigid so that stresses on the encasement are effectively translated through the polymer encasement medium to the optical fibers. This allows the optical fibers to resist compressive stresses on the cable, thus reducing the tendency of the cable to bend, and form wrinkles on the interior of the bend radius.

Turning to the rejections on the Quinn et al. patent, the encasement in the Quinn et al. cable is a soft polymer. It is chosen specifically to AVOID the feature that applicants claim, namely to avoid translating stress on the cable to the optical fibers. Quinn et al. state at col. 1, line 61 et seq.

> "The water blocking zone provides water blocking, defines a buffer that allows desirable levels of optical fiber movement, and is operative to cushion mechanical loads."

It is clearly the objective of the Quinn et al. design to have a material in the cable that blocks water, but with a minimum of mechanical influence on the optical fibers. This is clearly a prescription for a decoupled cable design, where the optical

fibers and the outer surface of the cable have minimum mechanical coupling. In the Quinn et al. design the de-coupling is achieved by choosing a soft material, implicitly one that is incapable of translating stresses to the optical fibers. The materials used to implement the Quinn et al. design are described more fully in the application referenced on column 3. line 18. The application is now U.S. Patent No. 6,374,023. The three-dimensional network that is taught by Quinn et al. in the patent cited in the Office action, is described in the earlier referenced patent as:

> "The three-dimensional network of thermoplastic polymer, optionally including various additives, desirably possesses suitable properties under severe conditions such that temperature change does not cause large compressive strain on the fibers, and desirably possesses a low modulus thereby minimizing the resulting strain on the optical fiber, and inhibits dripping at high temperatures."

This is an explicit prescription for a cable design in which compressive stresses from the cable skin to the optical fibers in the cable are avoided. They explicitly achieve this using low modulus materials.

In contrast, applicants materials have a relatively high modulus, as claimed in claim 1, of at least 210 MPa. This is necessary to promote translation of stresses through the encasement layer, and is a main objective of applicants' invention as described and claimed.

Consistent with this functional explanation, the materials recommended by Quinn et al. are low modulus materials. The KRAYTON™ block copolymers have a modulus well below the value claimed by applicants. The highest modulus material

in the KRAYTON™ family of materials appears to be G7820, with a modulus of 167 MPA and a Shore hardness of 91. The modulus is generally related to the Shore hardness and tracks the modulus value, i.e. lower hardness, lower modulus. The remainder of the KRAYTON™ materials have lower hardness. See http://www.kraton.com/kraton/generic/menu.asp?ID=547 which states:

> "In both D- and G-series Kraton hardness ranges from 11-91."

Actually, Quinn et al. prefer even softer materials to practivce their invention, confirming their teaching that the coupling claimed by applicants is to be avoided. In the patent referenced for the material description, the following is stated:

> "Preferred thermoplastic polymers for use in the filling material include those that will allow the filling material to have a Shore A hardness of about 25 or less, preferably about 20 or less, more preferably about 15 or less, even more preferably about 10 or less, even more preferably about 5 or less and even more preferably about 1 or less."

To further correlate the materials specified by Quinn et al. with applicants' modulus, applicants have measured the modulus of KRAYTON G7820, the hardest of the KRAYTON materials (Shore hardness 91). It has a modulus of 167 MPa. Additional data can be found at: http://www.kraton.com/kraton/attachments/downloads/82021AM.pdf which in Fig. 4 gives stress curves for the (relatively hard) KRAYTON materials, and show that the modulus (Y-axis) is substantially below the claimed 210 MPa value, i.e. less than 40 MPa.

All of the remaining claims pending depend from claim 1, and claim 1 distinguishes in a fundamental way from the Quinn et al. et al. teachings. Accordingly it is believed that all claims are allowable.

In the event that the Examiner concludes that a telephone call would advance the prosecution of this application, the Examiner is invited and encouraged to call the undersigned attorney at Area Code 757-258-9018.

Respectfully,

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